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Bulletin 76 **June, 1900**

NEW HAMPSHIRE COLLEGE
AGRICULTURAL EXPERIMENT STATION

UTILIZING
THE
GREENHOUSE IN SUMMER

A Summer House of Peppers.

BY F. WM. RANE

NEW HAMPSHIRE COLLEGE
OF
AGRICULTURE AND THE MECHANIC ARTS
DURHAM

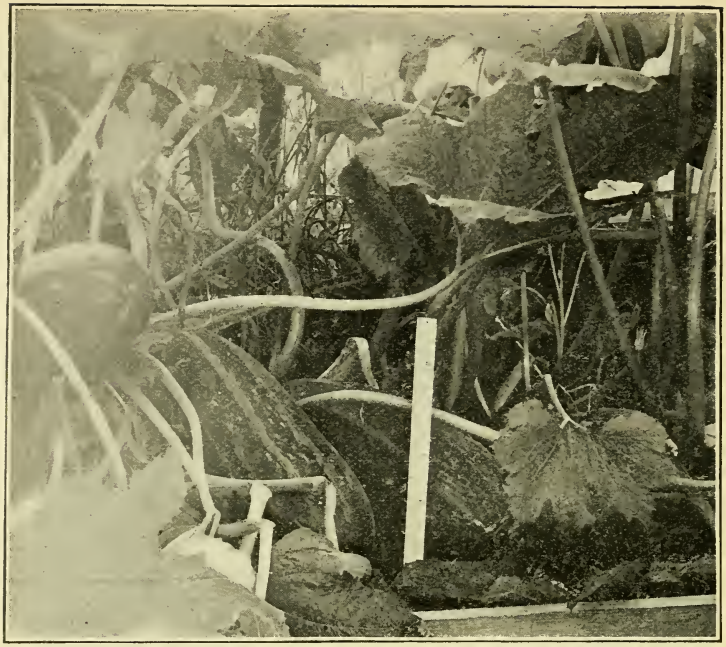

FIG. 53.—Crocozelle Bush Squash growing on side bench in early summer.

FIG. 54.—White Bush Scalloped Squash growing on side bench under glass.

UTILIZING THE GREENHOUSE IN SUMMER

BY FRANK WM. RANE

During the summer months it is the prevailing custom to clean out the forcing houses, allowing them to lie idle until it is time to prepare for the fall campaign. The excessive heat in summer dries out the soil under glass quickly and consequently much shading, watering, ventilating, etc., are required. Also, the crops ordinarily grown under glass are readily grown outside at this season. Three years ago it occurred to the writer that there should be some tropical or other plants of economic importance that would adapt themselves to the utilization of our empty houses. Egg plant, peppers, sweet potatoes and tomatoes were selected for the first season. The house used for the experiment is even span, 25 x 100 feet, and with the exception of one side bench, which is 3½ x 100 feet, the beds are all on the ground. All of the plants used were started early so that they were of good size when transplanted into their permanent positions. By so doing we gained earlier maturity and hence greater profit.

TOMATOES.

From tomato plants, the seed of which was sown on March 10, and the plants set into the ground beds between lettuce on April 9, we began picking fruit on July 10. The plants were set 18 inches apart each way and trained to one stem. The varieties used were Early Acme, Beauty, New Liberty Belle, Ignotum, Fordhook First and Bond's Early Minnesota. See Figure 55. These varieties from past experience had proved very valuable for forcing. Records were kept of each of the varieties.

On examination of data at hand, it was found that August

10th could safely be counted upon as about the ripening period of the outdoor crop in New Hampshire. Figuring the yield per average plant for each variety to Aug. 10th, and then taking the average of the whole, the yield figured 2 lbs., 6½ oz. per square foot. The average price which tomatoes have brought between July 10th and Aug. 10th has been at least 7 cents per pound. Two pounds six and one-half ounces at 7 cents a pound equals nearly 16.8 cents,—the income from one square foot. Multiplying this by the number of square feet

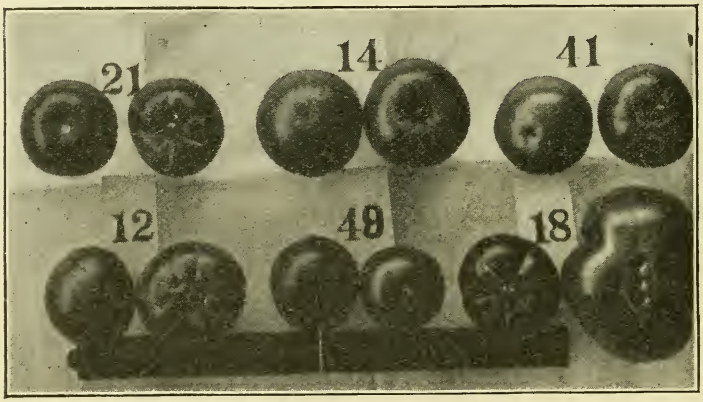

Fig. 55.—Specimens of Tomatoes.

12. Early Acme.
14. Beauty.
18. New Liberty Bell.
21. Ignatum.
41. Fordbrook First.
49. Bond's Early Minnesota.

available for tomatoes, or 1,440 square feet, the area of our center bed, we have a return of $241.92.

In 1897 outdoor tomatoes did not ripen until Aug. 30th, the season being very backward. In this case the same vines were continued in bearing, and the average weight per plant at this date was 5 pounds,—or 3⅓ pounds per square foot. The price remained 6 cents throughout this time, making a rate of 20 cents per square foot, or $288 as compared with $241.92,—the sales to Aug. 10th. The plants at the end of this period averaged from 6 to 8 feet in height. Plants that were not trained to a single stem and on benches averaged

during the same time only 2 pounds per square foot. These same plants would continue in bearing until the last of September at almost the same rate of yield; but as soon as the outdoor varieties begin bearing, there is little gained in keeping them. At this time of year, the houses need to be overhauled and put into condition for the season's work.

As with tomatoes the possibilities of other crops under glass

FIG. 56.—The New York Improved Egg Plant grown under glass.

during summer are little known. Egg plants and peppers find ideal conditions in the summer greenhouse.

Neither of these fruited out of doors in New Hampshire in 1897, owing to the unfavorable conditions of the season. Inside we fruited the large squash pepper at the rate of 160½ pounds per square rod, or 9½ ounces, averaging 7 fruit per square foot; and the Ruby King at the rate of 122 pounds per square rod or 7.2 ounces, averaging 5½ fruit per square foot. See figure on cover of this bulletin.

Of the egg plants, the varieties used were White Pearl, New York Improved, Large Purple, Black Pekin, and Early Long Purple. The last named gives the quickest returns and is very productive. Of the other three varieties the New York Improved, figure 56, is preferable. They averaged a return of about 18 cents per square foot.

SWEET POTATOES

Have not been a success for some reason. The vines were very prolific, but few potatoes set. The variety selected was the "New Hardy Bush or Vineless," introduced by Johnson and Stokes for the first time in 1897.

POLE BEANS

Are a reliable and quick growing crop for the forcing house in summer when overhead space is available. Otherwise use the dwarf varieties. The directions for growing are the same as for other seasons of the year; these are given in Bulletin No. 62 of this station.[1]

SWEET CORN,

Although it takes a longer time than many other crops, is well adapted for growing in the forcing house in summer; for directions consult Bulletin No. 60, also of this station.[2]

CELERY

Is a crop that can with proper care be grown at this season of the year. Of a number of varieties tested none was as successful as The Golden Self Blanching. Fig. 57 is a photograph of three varieties, Early Arlington, Golden Self Blanching, and White Plume. These were transplanted from the seed trays into ground beds on April 29th, and their photograph was taken on July 4th, just 65 days from transplanting. The plants were set six inches apart each way. There is little trouble in growing celery at this time of year under glass, but the difficulty comes in blanching it. It is on this account

[1] Forcing Pole Beans under Glass.
[2] Green Corn under Glass.

that the Golden Self Blanching variety is preferable. This variety blanches quickly and is ready for market in a very short time, while the others require a longer time and therefore rot badly. The temperature being so high at this time of year any blanching process must be of short duration. Celery

FIG. 57.—Celery grown under glass.

grown at this time of year is not as crisp and nutty as in the fall, but is very fair and we believe can be made a paying crop.

Early Squashes were also successfully grown, although no definite data can be given as a number of varieties were tried and there was not a sufficient quantity of any to form a basis for an estimate. A few of the varieties as grown are seen in the accompanying illustrations from photographs taken in the houses, figures 53, 54, and 60.

MUSKMELONS.

In the season of 1898 a space 7 x 50 feet was used for forcing summer muskmelons. The plants were started in pots and handled similarly to cucumbers in every respect, training and all. The plants were transplanted into the beds early in May and began ripening fruit the fore part of August. This plot yielded 330 fruit. The varieties grown were Rose Gem,

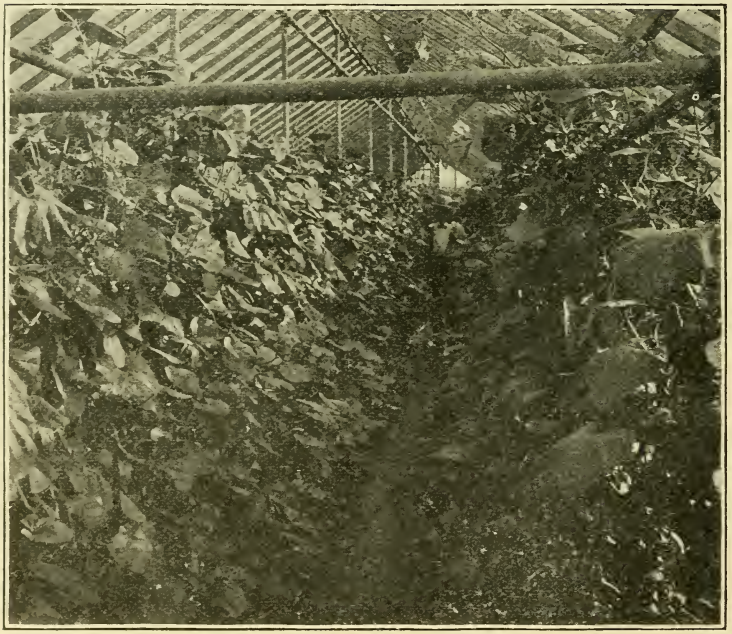

FIG. 58.—A house of Early Summer Muskmelons.

Netted Gem, and true Jenny Lind. They completely covered the trellis for seven feet in height and were severely nipped back. Fig. 59 is a photograph of the mature fruit hanging on the vines, and Fig. 58 a view of the trellises in the house.

To make a financial success with muskmelons it is necessary to have the crop mature before the out-of-door crop comes on. The garden melons begin to ripen on the average about the first of September, some seasons somewhat earlier and

more often later. It requires three months from the time the plants are transplanted into the beds until the fruit is mature. It is necessary, therefore, to start the plants early enough to allow sufficient time for maturing and harvesting before the

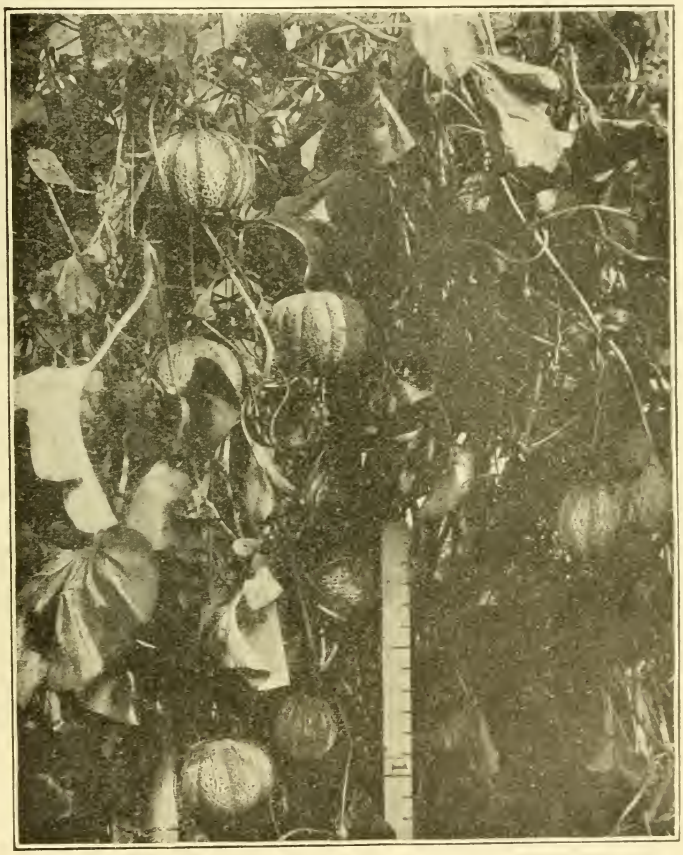

FIG. 59.—A closer view of the fruit on vines shown in previous figure.

out-door varieties are ready. Three weeks to a month are long enough from seed until ready to transplant from the pots into the bed. The returns will vary according to various markets; generally they should bring a fair price and find ready sale.

CUCUMBERS.

Cucumbers are forced readily in summer in the forcing house. The custom, however, with this fruit is to utilize the same vines that have been bearing during the earlier spring, running them on until the crop begins to come in from the garden which quickly floods the market. There doubtless are other crops that will prove suitable for the greenhouse in sum-

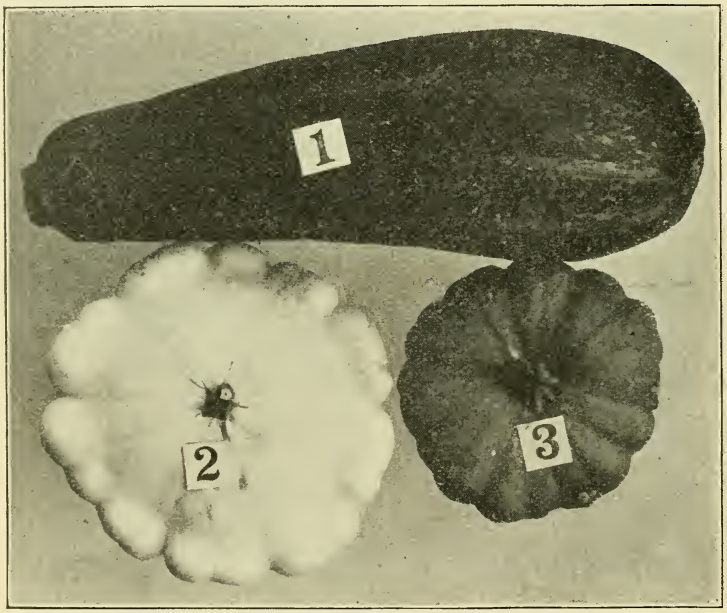

FIG. 60.—Varieties Squashes under glass.
1. Crocozelle Bush. 2. White Bush Scalloped. 3. Yellow Bush.

mer. Definite information in regard to the details of forcing the above named crops are not given in this bulletin, as this information is already available in bulletins from various experiment stations besides our own, and as well to be found in the "Forcing Book," by Bailey, which is published by the MacMillan Co., of New York city, at a price of 75 cents. Doubtless those persons who will perhaps be the most interested in this subject are those already in the forcing business

or who have greenhouses, and these doubtless have such literature already.

Greenhouses, more particularly forcing houses, are rapidly increasing in number throughout the northern states. It may be overdone in time, but at present it is a valuable source of income. It almost invariably follows that a second or more houses are built after the trial one. This may be due to a number of causes; the labor necessary for one house might as easily handle more; one may not be large enough to supply the custom of the place, etc. More likely, however, the owner finds the occupation remunerative and delightful, besides giving, as it does, work throughout the winter months. On rainy days during the growing season, there is little trouble in finding plenty to do inside, if one has a greenhouse.

The value of glass houses in connection with most agricultural pursuits is just beginning to be appreciated. Where many gardeners and farmers do not have stock and milk to employ their time in winter, glass could be made to increase their annual net earnings. It is not the purpose of this bulletin, however, to dwell at length upon the value of glass houses; but, assuming their recognized value, to point out the possible economic importance of their further usefulness; provided they are properly cared for during the summer months.

CONCLUSION.

From our experience it is evident that we can ill afford to allow the houses to remain idle throughout the summer. The conditions are easily controlled, and whatever the outside season may be, we are assured of, at least, these crops.

Possibly this may not apply with equal force to those states farther south, but it is a subject worthy of consideration, we believe, in the more temperate sections and especially in New England.